



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,614	08/19/2003	Ramesh Raskar	MERL-1483	4946

7590 07/27/2005

Patent Department
Mitsubishi Electric Research Laboratories, Inc.
201 Broadway
Cambridge, MA 02139

EXAMINER

FUREMAN, JARED

ART UNIT	PAPER NUMBER
----------	--------------

2876

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,614

Applicant(s)

RASKAR, RAMESH

Examiner

Jared J. Fureman

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/19/2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/20/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Receipt is acknowledged of the amendment, on 4/13/2005, which has been entered in the file. Claims 1-20 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Cato (US 5,874,724).

Cato teaches an identification tag and identification reader, the identification tag (104) comprising: a memory (116) storing an identification code (identifying information, see column 6 lines 21-23); an optical communication part (106) for receiving a predetermined optical signal; and a radio communication part (112 and 114) for transmitting the identification code stored in the memory when receiving the predetermined optical signal by the optical communication part; the reader comprising: an optical communication part (202, 208, 210, and 212) transmitting a predetermined optical signal; and a radio communication part (120 and 122) receiving an identification code transmitted when receiving the predetermined optical signal by an identification tag; (see figure 1, column 2 lines 30-44, column 3 lines 13-34, column 3 line 60 - column 4 line 40, column 6 lines 8-26, column 7 lines 40-57).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 6-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brick et al (US 6,269,342) in view of Cato.

Brick et al teaches an identification tag (330) in a form of a single microcircuit, and an identification method comprising: an optical transceiver (338A); a radio transceiver (338B); a memory (334) storing an identification code (tag ID) connected to the optical transceiver and the radio transceiver; means (control unit 332) for operating at least one of the transceivers in receive mode while operating at least one of the transceivers in transmit mode; in which the identification code includes one or more dates (the tag ID is associated with price effective dates); means (control unit 332) for operating at least one of the transceivers in receive mode and transmit mode while operating the other transceivers in receive mode and transmit mode; means for synchronizing the transmitting and receiving according to receiving light; (see figure 10, column 10 line 61 - column 11 line 10, column 12 line 34 - column 13 line 34).

Brick et al fails to specifically teach means for transmitting the identification code by the transceiver operating in the transmit mode in response to receiving a predetermined signal by the transceiver operating in the receive mode; means for synchronizing the transmitting and receiving according to receiving light.

Cato teaches an identification tag (104) and identification method comprising: a memory (116) storing an identification code (identifying information, see column 6 lines 21-23); an optical communication part (106) for receiving a predetermined optical signal; and a radio communication part (112 and 114) for transmitting the identification code stored in the memory when receiving the predetermined optical signal by the optical communication part; operating at least one of the communication parts (the optical communication part 106) in receive mode while operating at least one of the communication parts (the radio communication part 112 and 114) in transmit mode; and transmitting the identification code by the communication parts operating in the transmit mode in response to receiving a predetermined signal by the communication parts operating in the receive mode; an optical communication part (202, 208, 210, and 212) transmitting a predetermined optical signal; and a radio communication part (120 and 122) receiving an identification code transmitted when receiving the predetermined optical signal by an identification tag (see figure 1, column 2 lines 30-44, column 3 lines 13-34, column 3 line 60 - column 4 line 40, column 6 lines 8-26, column 7 lines 40-57). Cato also teaches means for synchronizing the transmitting and receiving according to receiving light (the tag will only transmit the radio signal and respond to received radio signals after receiving the light signal).

In view of Cato's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the tag as taught by Brick et al, means for transmitting the identification code by the transceiver operating in the transmit mode in response to receiving a predetermined signal by the transceiver

operating in the receive mode; means for synchronizing the transmitting and receiving according to receiving light; in order to provide greater flexibility in communicating with the tags and preserve power consumption (see column 7 lines 40-47, of Cato).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brick et al as modified by Cato further in view of Gloton (US 5,635,701).

The teachings of Brick et al as modified by Cato have been discussed above.

Brick et al as modified by Cato fails to specifically teach the optical transceiver including a single photodiode configured to transmit and receive light signals.

Gloton teaches the use of an optical transceiver including a single photodiode configured to transmit and receive light signals (see column 3, lines 19-20).

In view of Gloton's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the tag as taught by Brick et al as modified by Cato, the optical transceiver including a single photodiode configured to transmit and receive light signals; in order to reduce the number of components. Furthermore, Gloton teaches that the use of a single transmitter-and-receiver diode is an art recognized functional equivalent to the use of separate transmitter and receiver diodes (see column 3 lines 19-21, of Gloton).

6. Claim 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brick et al as modified by Cato further in view of Beigel et al (US 6,784,788).

The teachings of Brick et al as modified by Cato have been discussed above.

Brick et al also teaches the tag including a battery (336) for powering the tag.

Brick et al as modified by Cato fails to specifically teach the radio transceiver including an antenna formed as an induction coil; the induction coil acquires power for the optical transceiver; and means for storing the power.

Beigel et al teaches a tag including a radio transceiver including an antenna formed as an induction coil; the induction coil acquires power for the tag; and means (a battery) for storing the power (see column 4 lines 11-14).

In view of Beigel et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the tag as taught by Brick et al as modified by Cato, the radio transceiver including an antenna formed as an induction coil; the induction coil acquires power for the optical transceiver; and means for storing the power; in order to recharge the battery, thereby reducing the need to replace batteries in the tags.

Response to Arguments

7. Applicant's arguments filed 4/13/2005 have been fully considered but they are not persuasive.

In response to applicant's argument that Cato requires both the radio transceiver and the optical receiver to each receive a signal before the radio transceiver can transmit information to the base station, Cato cannot transmit if both signals are not received (see pages 7 and 11-12, of the amendment filed on 4/13/2005), Cato teaches activating a radio transceiver (radio frequency sub-system 112 and antenna 114, figure 1) when an optical receiver (photodetector 106, figure 1) receives a predetermined signal (illumination of an appropriate wavelength and flash pattern, see column 2, lines

37-44). When a light select mode command is received from the base station via the radio transceiver (step 404, figure 4 and column 7, lines 5-27) photodetector 106 is operated in receive mode, after receiving the coded light pulse (step 408, figure 4 and column 7, lines 28-30), the tag 104 will perform normal RFID tag functions (step 406, figure 4), including receiving and transmitting (see column 4, lines 30-35) using the radio transceiver. After receiving the coded light pulse, the optical receiver (photodetector 106) is still in receive mode, while the radio transceiver (radio frequency sub-system 112) may be placed in transmit mode, which is part of normal RFID tag functions. While the tag 104 must receive the light select mode command via the antenna 114 and radio frequency sub-system 112 prior to photodetector receiving the coded light pulse, the radio frequency sub-system is nonetheless only enabled (placed in transmit mode, which is part of normal RFID tag functions, for example) after receiving the coded light pulse, that is, the optical communication part (photodetector 106) receives a predetermined signal when the optical communication part is in receive mode. It is noted that all of applicant's claims use the transitional phrase "comprising", which is open-ended and does not exclude additional, unrecited elements or method steps (see MPEP 2111.03[R-2]). Thus, while Cato includes additional steps that are not recited in the claims, since Cato only allows the radio transceiver to transmit (part of normal RFID tag functions) after the optical receiver has received the predetermined signal (the coded light pulse), Cato meets the claimed limitations for which Cato is being applied.

In response to applicant's argument that Brick never operates at least one of the transceivers in receive mode while operating at least one of the transceivers in transmit mode as claimed, Brick does not transmit the codes (see pages 7-9, of the amendment filed on 4/13/2005), Cato suggests operating the optical communications part in receive mode and operating the radio communications part in transmit mode (after receiving the coded light pulse, the optical receiver (photodetector 106) is still in receive mode, while the radio transceiver (radio frequency sub-system 112) may be placed in transmit mode, which is part of normal RFID tag functions). Cato also teaches transmitting information stored in the tag as part of the normal RFID tag functions. Thus, the combination of Brick and Cato teaches/suggests these features to one of ordinary skill in the art at the time of the invention.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action (the new grounds of rejection applied to claims 18 and 19).

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2876

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jared J. Fureman
Jared J. Fureman
Primary Examiner
Art Unit 2876

July 21, 2005